This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: D8336 – 21

Standard Test Method for Characterizing Tack of Prepregs Using a Continuous Application-and-Peel Procedure[1]

This standard is issued under the fixed designation D8336; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method covers measurement of adhesion (tack) between partially cured (B-staged) composite prepreg and a substrate in a peel test, under specified conditions. The test may be conducted to measure tack between a flexible layer of prepreg and another prepreg layer bonded to a rigid substrate (Method I) or a rigid metal substrate (Method II). This test method is primarily geared towards material characterization for automated material layup but can be modified for use with other processes. It is well known that material tack is a function of multiple processing and environmental variables. Permissible composite prepreg materials include carbon, glass, and aramid fibers within a B-staged thermoset resin.

1.2 Measured tack is specified in terms of a peel force at a given specimen width.

1.3 *Units*—The values stated in SI units are to be regarded as standard. The values given in parentheses after SI units are provided for information only and are not considered standard.

1.4 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

A480/A480M Specification for General Requirements for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip
D883 Terminology Relating to Plastics
D1781 Test Method for Climbing Drum Peel for Adhesives
D3167 Test Method for Floating Roller Peel Resistance of Adhesives
D3878 Terminology for Composite Materials
E4 Practices for Force Verification of Testing Machines
E122 Practice for Calculating Sample Size to Estimate, With Specified Precision, the Average for a Characteristic of a Lot or Process
E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods
E456 Terminology Relating to Quality and Statistics

3. Terminology

3.1 *Definitions*—Terminology D3878 defines terms relating to composite materials. Terminology D883 defines terms relating to plastics. Terminology E456 and Practice E177 define terms relating to statistics. In the event of a conflict between terms, Terminology D3878 shall have precedence over the other documents.

4. Summary of Test Method

4.1 A continuous application-and-peel method is employed to quantify tack at given test conditions (such as temperature) between one B-staged prepreg layer and a second B-staged prepreg layer which is bonded to a rigid substrate, or between a B-staged prepreg specimen and a rigid substrate. During a test, a prepreg specimen laid up on a substrate with or without another prepreg layer is fed through the test fixture continuously (see Fig. 1). The compaction roller presses the prepreg against the substrate (and against the peel roller) at a controllable force, bonding the prepreg to the substrate at a set application rate. Simultaneously, the prepreg is peeled from the substrate at a peel rate which is identical to the application rate. Data is collected over two phases where only the second phase is related to adhesion. The peel force is determined from the difference in the average force between the two phases. Measuring the peel force during a test gives a measure for the strength of adhesion between prepreg and substrate at the given peel rate.

[1] This test method is under the jurisdiction of ASTM Committee D30 on Composite Materials and is the direct responsibility of Subcommittee D30.03 on Constituent/Precursor Properties.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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